text-book on physical chemistry dealing with the same subject. There is a slip in the equation of the dissociation constant in Ostwald's "Dilution Law" on p. 186.

Henderson's work on the maintenance of neutrality in the organism is very clearly described. In the carbonate phosphate equations given on p. 199 the proportion dissociated of NA_2HPO_4 in decimolar concentration is given as 0·04 instead of 0·64, as is evident from the proportions required to obtain a hydrion concentration of $1\cdot10^{-7}$. There are other slight numerical errata in this summary of Henderson's work.

We can only allude briefly to the remaining chapters, which are of a more purely physiological type. The essential characteristic of all is the originality of the treatment. Recent work in protein and carbohydrate metabolism receives due attention, but, as one would expect, the later chapters on catalysis and enzymes and on secretion receive much more elaborate treatment. The author very rightly directs attention to the necessity for very careful examination of all cases of supposed anti-ferment production. Undoubtedly in many cases the influence of alterations in hydrion concentration and adsorption have not been sufficiently considered in experiments on the production of antibodies.

The section dealing with excitation and inhibition will be read with the greatest interest and profit by all physiologists.

A slight alteration in the order of the closing chapters might have been advisable. The section on electrical changes in tissues receives an essentially modern treatment. It is somewhat pathetic that the older work in this, as in other departments of physiology, has been entirely displaced. There is no reference to the work of Du Bois-Reymond, just as in the subject of reflexes we find no reference to Pflüger's work. In the scope of this brief review we can refer only to the excellent articles on the action of light, on respiration, and on the action of hormones, drugs, and toxins.

The work as a whole requires careful study, and will undoubtedly serve as an incentive to research in many departments of physiology. It is written in a very pleasant style, and its value is enhanced by the interesting portraits of men of science whose work has contributed to the advance of physiology along the lines dealt with in this work. English physiology is indeed fortunate in numbering among its most able research workers one who has been able to enrich the science by this most valuable contribution to general physiology.

T. H. M.

A HANDBOOK FOR WIRELESS TELEGRAPHISTS.

Handbook of Technical Instruction for Wireless Telegraphists. By J. C. Hawkhead. Second edition, revised and enlarged. By H. M. Dowsett. Pp. xvi+310. (London: The Wireless Press, Ltd., 1915.) Price 3*s*. 6*d*. net.

THIS "Handbook of Technical Instruction for Wireless Telegraphists" would more suitably be entitled a "Handbook for the use of Marconi Operators in Wireless Telegraphy," because it deals almost exclusively with the methods and apparatus of the Marconi Company. It is divided into three parts: the first concerned with the elementary facts of electricity, the second comprising a couple of chapters on electromagnetic waves and receiving sets, and the third explaining the special appliances and systems of apparatus in use in the Marconi Company's installations.

Except for the fact that operators on board ship have not generally space in their cabins for many books, it is difficult to see why so much of this book should be occupied with the elementary information on electrical facts given in dozens of other manuals. In the first chapter the authors suggest that the term "difference of potential" is identical in meaning with the term "electromotive force." But this is not the case. We can have electromotive force created under conditions in which the term difference of potential has no meaning. Apart from one or two little defects in exposition, the information in part i. is useful so far as it goes, but would scarcely be sufficient for instruction taken alone, and would be unnecessary for operators who have already obtained a grounding in the elements of electrical knowledge elsewhere.

Part iii., which deals with the special apparatus of the Marconi Company, is, on the other hand, very useful, and is characterised by many excellent diagrams and photo illustrations of actual apparatus. The schemes of connection and internal arrangements of apparatus are particularly good and valuable, since the operator out of reach of land is thrown entirely on his own resources if anything goes wrong with his apparatus. The great experience of Marconi's Wireless Telegraph Company in land and ship installations has enabled them to perfect, in a very high degree, the details of all their apparatus so as to render it, so far as possible, absolutely certain in operation and highly efficient.

A very interesting chapter is that on the Marconi standard 1½-kilowatt wireless telegraph set, which is that mostly used on board ship, every detail of which has been the subject of the most

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careful thought and invention on the part of the company's experts.

The concluding portion of this chapter deals in an especially interesting manner with the details of the receiving sets employing the Marconi magnetic detector, the crystal, and the Fleming oscillation-valve detectors. The balanced crystal and valve-detectors used for eliminating atmospheric disturbances are extremely well described. Chapter v. in part iii. is occupied with a description of the 5-kilowatt "battleship" set, which has particular interest at the present moment.

The following chapter is concerned with the portable and pack sets used in military work.

For a reader, even although not professionally a wireless telegraph operator, who has some general electrical knowledge, this practical part of the book will have considerable interest, and it can be strongly recommended as containing a concise, detailed account of the apparatus most used in the conduct of those wonderful feats of wireless telegraphy to which so many travellers by sea have owed escape from death. Altogether, the book is a useful addition to the library of the wireless telegraphist, and its excellent illustrations and good make-up are creditable to both authors and publishers. A very good feature is the intermingling of photo reproductions showing the actual appearance of the apparatus, with well-drawn schemes of connections showing the arrangement of the circuits.

OUR BOOKSHELF.

Manual of the New Zealand Mollusca. By H. Suter. Atlas of plates; 72 plates with descriptions. (Wellington, N.Z.: John Mackay, Government Printer, 1915.) n.p.

THE appearance of this volume of plates completes the publication of Mr. Suter's "Manual of New Zealand Mollusca." Nearly every species described in the text has been figured, thereby enhancing the value of the work as a book of reference. The illustrations reach a high level of excellence, and the figures generally are clear, well drawn, and adequate in detail. The least satisfactory are those on plates 2, 7, and 50, in which the details are so obscured that the figures are almost useless.

The weakest part of this volume is that devoted to Nudibranchs. Only fifteen out of thirty-seven species are illustrated, and only eight of these figures (plates 36 and 37) are sufficiently good to aid in the identification of species. These Mollusca must be studied alive, and the figures drawn and reproduced in colour to be of any service. The difficulties of obtaining such figures and the high cost of reproduction have doubtless precluded their use in this work. The explanations of the figures are accompanied by a note of the actual size, presumably of the specimen figured, and references to the text, details for which those who use the work will thank the author.

We renew our congratulations to Mr. Suter and the New Zealand Government on the publication of this volume of plates. The author has earned the thanks of conchologists the world over, and particularly of students of Mollusca in the Dominion, for undertaking the work and for the thoroughness and care with which it has been done. W. M. T.

Morphology and Anthropology. A Handbook for Students. By Dr. W. L. H. Duckworth. Volume i Second Edition. Pp. xiv+304. (Cambridge: At the University Press, 1915.) Price 10*s*. 6*d*. net.

IN the eleven years which have elapsed since Dr. Duckworth's indispensable manual made its first appearance, there has been a rapid growth in all those branches of knowledge on which "Morphology and Anthropology" are based. This is especially the case as regards our knowledge of the anatomy of the Primates—particularly of the anthropoid apes. Hence in the present edition of his manual Dr. Duckworth has found it necessary to expand that section which deals with the anatomy of the Primates and with the position of the Primates in the mammalian phylum to such an extent that it now appears as a separate volume. In its present shape this volume gives an excellent introduction to a systematic study of the anatomy of man and of the animals which are closely related to man in structure and in origin. So far as we know, there is no other book in the English language which covers the same ground.

By turning over and comparing the pages of the present and past editions, particularly the illustrations, one is struck by the progress made during the past eleven years. During that time the cortical areas of the brain of man and every group of ape has been worked out; Dr. Duckworth has chosen excellent figures to represent this and other aspects of our progress. This volume is more of the nature of a new work than of a new edition, so much has it been rewritten, expanded, and in every way improved.

Heaton's Annual. The Commercial Handbook of Canada and Boards of Trade Register, 1916. Pp. 506. (Toronto: Heaton's Agency; London: Simpkin, Marshall, Hamilton, Kent and Co., Ltd.) Price 5*s*.

THE twelfth issue of this useful yearly work of reference contains, in addition to its usual contents, which have been described on previous occasions, a new section entitled "Where to find it." This part provides a guide to Dominion and Provincial Government reports and other standard publications showing those contents of interest to travellers, intending settlers, and others, and how the reports and books indexed may be procured. The volume may be commended especially to teachers of commercial geography who should find its mass of conveniently arranged information invaluable.

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